General

Guideline Title

Prophylactic antibiotic use in penetrating abdominal trauma: an Eastern Association for the Surgery of Trauma practice management guideline.

Bibliographic Source(s)

Goldberg SR, Anand RJ, Como JJ, Dechert T, Dente C, Luchette FA, Ivatury RR, Duane TM, Eastern Association for the Surgery of Trauma. Prophylactic antibiotic use in penetrating abdominal trauma: an Eastern Association for the Surgery of Trauma practice management guideline. J Trauma Acute Care Surg. 2012 Nov;73(5 Suppl 4):S321-5. [54 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Practice management guidelines for prophylactic antibiotic use in penetrating abdominal trauma. Allentown (PA): Eastern Association for the Surgery of Trauma (EAST); 2000. 33 p. [45 references]

Recommendations

Major Recommendations

The levels of recommendation (1-3) and classes of evidence (I-III) are defined at the end of the "Major Recommendations" field.

Level 1

1. A single preoperative dose of prophylactic antibiotics with broad-spectrum aerobic and anaerobic coverage should be administered to all patients sustaining penetrating abdominal wounds.
2. Prophylactic antibiotics should be continued for not more than 24 hours in the presence of a hollow viscus injury in the acutely injured patient.
3. Absence of a hollow viscus injury requires no further administration of antibiotics.

Level 2

1. There are no Level 2 recommendations.

Level 3

1. In patients admitted with hemorrhagic shock, the administered dose of antibiotics may be increased twofold or threefold and repeated after transfusion of every 10 units of blood until there is no further blood loss.
2. Aminoglycosides should be avoided because of suboptimal activity in patients with significant injuries if possible.

Definitions:

Classes of Evidence

Class I: Prospective, randomized, double-blind study

Class II: Prospective, randomized, non-blinded trial

Class III: Retrospective series of patients or meta-analysis

Levels of Recommendations

Level I: The recommendation is convincingly justifiable based on the available scientific information alone. This recommendation is usually based on Class I data, however, strong Class II evidence may form the basis for a level 1 recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, low quality or contradictory Class I data may not be able to support a level 1 recommendation.

Level II: The recommendation is reasonably justifiable by available scientific evidence and strongly supported by expert opinion. This recommendation is usually supported by Class II data or a preponderance of Class III evidence.

Level III: The recommendation is supported by available data but adequate scientific evidence is lacking. This recommendation is generally supported by Class III data. This type of recommendation is useful for educational purposes and in guiding future clinical research.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Penetrating abdominal trauma

Guideline Category

Management

Prevention

Clinical Specialty

Emergency Medicine

Internal Medicine

Surgery

Thoracic Surgery

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To develop updated recommendations from the 1998 original guideline document on the use of prophylactic antibiotics in penetrating abdominal trauma
- To address the clinical questions:
  - What is the appropriate use of preoperative antibiotics in penetrating abdominal trauma?
  - What is the appropriate duration of postoperative antibiotics in penetrating abdominal trauma?
  - Should perioperative antibiotic use be altered in the absence of hollow viscus injury at the time of laparotomy?
  - Is it necessary to redose antibiotics in the setting of hemorrhage?
  - What is the duration of therapy with antimicrobials for patients with damage control laparotomy and an open abdomen?

Target Population

Patients with penetrating abdominal wounds

Interventions and Practices Considered

Prophylactic antibiotics (with broad-spectrum aerobic and anaerobic coverage)

Major Outcomes Considered

- Incidence of infection including intra-abdominal infection, nonsurgical site infections and surgical site infections
- Morbidity

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A MEDLINE search was performed to identify publications from 1973 to 2011 using the key words "antibiotic prophylaxis," "penetrating abdominal injuries," "abdominal injuries," "complications," "peritonitis," "wound infection prevention and control," "open abdomen," "damage control laparotomy" (DCL), "pharmacokinetics," and "trauma." In addition, references included among the initial 1998 Eastern Association for the Surgery of Trauma (EAST) guidelines were included.

Forty-four English language articles were included in the analysis; letters to the editor, case reports, and review articles were omitted. The bibliography of each article was also reviewed to identify additional publications that may not have been identified in the original MEDLINE query.

Number of Source Documents

Forty-four articles were included in the analysis.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Class I: Prospective, randomized, double-blinded study

Class II: Prospective, randomized, non-blinded trial

Class III: Retrospective series of patients or meta-analysis

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Each article was reviewed and classified according to the methodology established by the Agency for Health Care Policy and Research of the US Department of Health and Human Services. Additional criteria and specifications were used for Class I articles as described by Oxman et al., 1993*. This process is similar to that performed for the original practice management guideline (PMG).

* Oxman AD, Sackett DL, Guyatt GH. User's guide to the medical literature. JAMA. 1993;270:2093-2095.

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The articles were reviewed by seven surgeons with expertise in trauma surgery, critical care, and acute care surgery who then collaborated to update the recommendations.

Rating Scheme for the Strength of the Recommendations

Level I: This recommendation is convincingly justifiable based on the available scientific information alone. It is usually based on Class I data, however, strong Class II evidence may form the basis for a level 1 recommendation, especially if the issue does not lend itself to testing in a randomized format. Conversely, weak or contradictory Class I data may not be able to support a level 1 recommendation.

Level II: This recommendation is reasonably justifiable by available scientific evidence and strongly supported by expert critical care opinion. It is usually supported by Class II data or a preponderance of Class III evidence.

Level III: The recommendation is supported by available data but adequate scientific evidence is lacking. This recommendation is generally supported by Class III data. This type of recommendation is useful for educational purposes and in guiding future clinical research.

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

The guideline document was presented to the Eastern Association for the Surgery of Trauma (EAST) membership for discussion and review at the annual EAST meeting in 2012.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Reduced incidence of postoperative infectious complications in patients with penetrating abdominal injuries.

Potential Harms

Not stated

Qualifying Statements

Qualifying Statements

- The Eastern Association for the Surgery of Trauma (EAST) is a multi-disciplinary professional society committed to improving the care of injured patients. The Ad hoc Committee for Practice Management Guideline Development of EAST develops and disseminates evidence-based information to increase the scientific knowledge needed to enhance patient and clinical decision-making, improve health care quality, and promote efficiency in the organization of public and private systems of health care delivery. Unless specifically stated otherwise, the opinions expressed and statements made in this publication reflect the authors' personal observations and do not imply endorsement by nor official policy of the Eastern Association for the Surgery of Trauma.
- "Clinical practice guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances."* These guidelines are not fixed protocols that must be followed, but are intended for health care professionals and providers to consider. While they identify and describe generally recommended courses of intervention, they are not presented as a substitute for the advice of a physician or other knowledgeable health care professional or provider. Individual patients may require different treatments from those specified in a given guideline. Guidelines are not entirely inclusive or exclusive of all methods of reasonable care that can obtain/produce the same results. While guidelines can be written that take into account variations in clinical settings, resources, or common patient characteristics, they cannot address the unique needs of each patient nor the combination of resources available to a particular community or health care professional or provider. Deviations from clinical practice guidelines may be justified by individual circumstances. Thus, guidelines must be applied based on individual patient needs using professional judgment.

*Institute of Medicine. Clinical practice guidelines: directions for a new program. MJ Field and KN Lohr (eds) Washington, DC: National Academy Press. 1990: pg 39.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

Goldberg SR, Anand RJ, Como JJ, Dechert T, Dente C, Luchette FA, Ivatury RR, Duane TM, Eastern Association for the Surgery of Trauma. Prophylactic antibiotic use in penetrating abdominal trauma: an Eastern Association for the Surgery of Trauma practice management guideline. J Trauma Acute Care Surg. 2012 Nov;73(5 Suppl 4):S321-5. [54 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2000 (revised 2012 Nov)

Guideline Developer(s)

Eastern Association for the Surgery of Trauma - Professional Association

Source(s) of Funding

Eastern Association for the Surgery of Trauma (EAST)

Guideline Committee

Eastern Association for the Surgery of Trauma (EAST) Practice Management Guidelines Committee

Composition of Group That Authored the Guideline

Committee Members: Stephanie R. Goldberg, MD; Rahul J. Anand, MD; John J. Como, MD; Tracey Dechert, MD; Christopher Dente, MD; Fred A. Luchette, MD; Rao R. Ivatury, MD; Therese M. Duane, MD

Financial Disclosures/Conflicts of Interest

The authors declare no conflicts of interest.

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Practice management guidelines for prophylactic antibiotic use in penetrating abdominal trauma. Allentown (PA): Eastern Association for the Surgery of Trauma (EAST); 2000. 33 p. [45 references]

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) format from the Eastern Association for the Surgery of Trauma (EAST) Web site .

Print copies: Available from the Eastern Association for the Surgery of Trauma Guidelines, c/o Stephanie R. Goldberg, MD, Division of Trauma, Critical Care, and Emergency General Surgery, P.O. Box 980454, Richmond, VA 23298; email: sgoldberg@mcvh-vcu.edu.

Availability of Companion Documents

The following is available:

- Utilizing evidence based outcome measures to develop practice management guidelines: a primer. 18 p. 2000. Available in Portable Document Format (PDF) from the Eastern Association for the Surgery of Trauma (EAST) Web site .

Patient Resources

None available

NGC Status

This summary was completed by ECRI on March 9, 2001. The information was verified by the guideline developer on May 4, 2001. This summary was updated by ECRI Institute on April 13, 2013. The updated information was verified by the guideline developer on May 10, 2013.

Copyright Statement

Disclaimer

NGC Disclaimer

The National Guideline Clearinghouseâ„¢ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.